Progress Report No. 18

Title: A Study of the Early Detection of Insect Infestations and Density/Distribution of Host Plants.

Citrus Insects Research
USDA, ARS
509 West Fourth St., Weslaco, Texas 78596

Period: July 1-31, 1974

EREP Investigation No. 319
NASA Contract No. 116301

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(A) During the June 1974 Skylab meeting at JSC, we viewed data taken of the 116301 task site and other areas of interest, such as citrus in Florida and Arizona. S-190B data from SL-3, which was on black and white negative film, of the Rio Grande Valley was examined and it was requested that we receive this data even though there was considerable cloud cover at the time it was exposed. A study of tree canopy cover within a citrus grove and its effects on identifying insect infestations has been undertaken. In viewing our aerial film which usually has a maximum scale of 1:10,000, we are able to view each tree or row separately. This eliminates any possibility of confusing soil patterns with insect infestations. Since the best resolution obtained from S-190B data is approximately 45 ft, we are unable to see individual trees or single rows. In most citrus groves in the Rio Grande Valley there is seldom complete ground cover. While viewing S-190B film, the ground that is not covered appears to blend in with the citrus and if the soil is dark, there is confusion as to whether we are seeing insect infestations or soil patterns. Citrus groves that have trees with larger canopies and less soil reflectance within the grove present fewer problems than those with smaller canopies and large amounts of soil reflectance.

(B) A request for frame 202085, task site 116301 of SL-3 was submitted June 1974. The acquisition of this data would give us the means to compare three types of film; color, color infrared and black and white, taken with the S-190B camera.

(C) During the next reporting period we will be concentrating our effort on frame 202085 of SL-3. Even though approximately 90% of the frame is covered with clouds there are a few groves visible. These groves will be compared with aerial photographs of the same groves.

(D) Groves that contain trees with large canopies resulting in little or no space between the trees will be more favorable for detection of insect infestations than groves with trees having smaller canopies. Dark soil patterns within a citrus grove may be confused with insect infestations since individual trees or rows cannot be seen. The less soil reflectance within a grove will decrease interpretation error in detection of insect infestations. The photo interpreter must be familiar with soil pattern signatures so that he can distinguish between insect infestations and soil patterns.

(E) Evaluation of data received will be continued. Work will begin on data requested as soon as it is received. A comparison of S-190B B & W, CIR and normal color film will be made.

(F) No travel other than that used for gathering ground truth was used.